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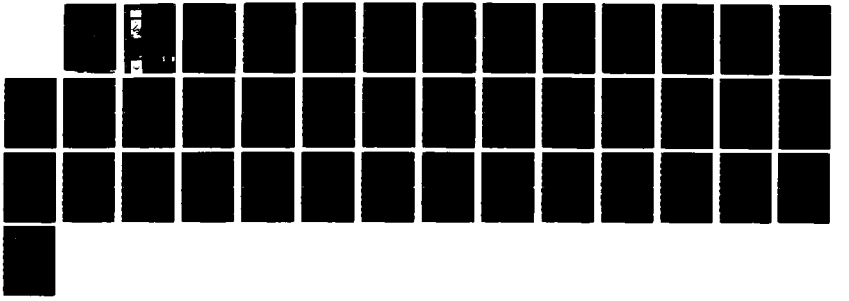

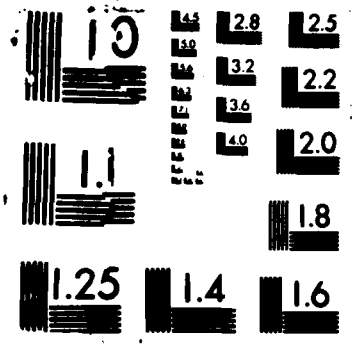
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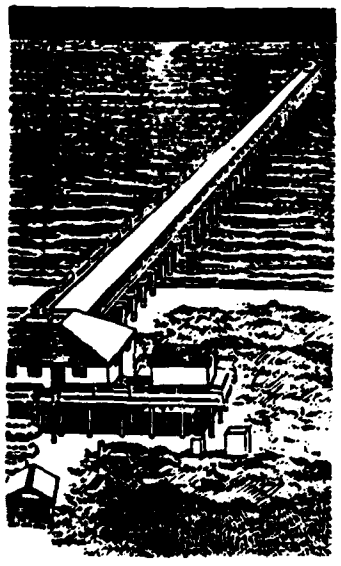

COASTAL ENGINEERING RESEARCH CENTER

INSTRUCTION REPORT CERC-87-3

A USER'S GUIDE TO THE LITTORAL ENVIRONMENT OBSERVATION RETRIEVAL SYSTEM

by

Ann R. Sherlock, André Szuwalski

Coastal Engineering Research Center

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
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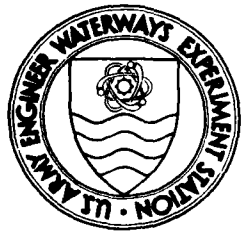

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The lack of available data on waves, currents, and sand movement along beaches in the United States is a major problem confronting planners and designers of coastal projects. Data from instruments such as wave and current gages are expensive to obtain and are rarely available at the precise location where needed.

The Littoral Environment Observation (LEO) program was established to help overcome some of these problems. Under this program, volunteer observers are recruited to obtain daily visual observations of such coastal variables as breaker height, wave period, direction of wave approach, wind speed and direction, longshore current velocity, and beach slope. Observers obtain the data by using simple, inexpensive equipment and for some data, e.g., wave height and direction, observers are asked to simply record a visual estimate.

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The LEO program has been ongoing since 1968, and observations have been made at over 200 sites along the coasts of the United States. The information collected has been placed in a computer data base and is available to the coastal community. This guide describes the LEO data collection process, the parameters involved, and the use of the LEO Retrieval System. The LEO Retrieval System is a computer-based analysis system that performs a variety of data retrieval, data analysis, and report processing fuctions.

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PREFACE

This report was prepared at the Coastal Engineering Research Center (CERC) of the US Army Engineer Waterways Experiment Station (WES) as part of the Field Data Collection Program, Coastal Engineering Area, Civil Works Research and Development, Headquarters, Department of the Army, Office, Chief of Engineers (OCE). Technical Monitors from OCE were Messrs. John H. Lockhart, Jr., and John G. Housley.

The Littoral Environment Observation (LEO) Retrieval System was developed by Ms. Ann R. Sherlock, Computer Analyst, Coastal Engineering Information Analysis Center (CEIAC), CERC, to provide coastal engineers direct access to an analysis of a large data bank of littoral environment observations, including surf conditions, local winds, littoral currents, and foreshore slopes.

This report was prepared by Ms. Sherlock and Mr. André Szuwalski, Director, CEIAC, under general supervision of Dr. James R. Houston and Mr. Charles C. Calhoun, Jr., Chief and Assistant Chief, CERC, respectively. This report was edited by Ms. Shirley A. J. Hanshaw, Information Products Division, Information Technology Laboratory, WES.

Commander and Director of WES during publication of this report was COL Dwayne G. Lee, CE. Technical Director was Dr. Robert W. Whalin.

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A USER'S GUIDE TO THE LITTORAL ENVIRONMENT OBSERVATION RETRIEVAL SYSTEM

PART I: INTRODUCTION

1. The US Army Corps of Engineers (Corps) has as part of its mission the responsibility for the design and construction of shore protection works. In carrying out this mission, coastal project planners and designers require information on meteorologic and oceanographic forces which affect the coast. The objective of the Littoral Environment Observation (LEO) program is to provide this information by establishing an economical reservoir of repetitive and systematic observations of both the forces and response elements in the coastal zone. This reservoir of information has been placed in a computer data base and is available to the coastal community.

Background

2. During the fall of 1966, the US Army Engineer District, San Francisco (SPN), asked the Coastal Engineering Research Center (CERC) to participate in a cooperative data collection program with the State of California. The program was to provide information on the natural forces and response elements in the littoral zone along the California coastline. CERC assumed the responsibilities of organizing the data collection and developing data collection procedures and techniques as well as serving as the coastal repository of the data (Berg 1969, Szuwalski 1970, and Schneider and Weggel 1982).

3. Since its inception in California, the LEO program has been used to monitor coastal processes along the Great Lakes coasts (Bruno and Hiipakka 1973), the Gulf Coast (Balsillie 1975), and the East Coast of the United States (DeWall 1977, and Schneider 1978). To date, data at over 200 sites have been collected through the LEO program.

Scope

4. The user's guide presented herein describes the LEO data collection process, the data parameters involved, and the LEO Retrieval System program.

The LEO Retrieval System is a computer-based analysis system that performs a variety of data retrieval, data analysis, and report processing functions.

Data Collection

5. LEO observations include surf conditions, local winds, littoral currents, and foreshore slopes. Surf conditions include estimates of breaker height, period and direction, and type of breaking waves. Wind observations include speed (measured using a wind meter) and direction. Longshore currents are measured using small packets of dye which disperse upon immersion. The current speed is estimated from the movement of the dye patch centroid for a 1-min period. Current direction is also noted. A measurement of foreshore slope (using a topographic hand level) is made at the upper limit of that part of the beach being wetted by swash runup.

6. All these data are recorded by the observer on the form shown in Figure 1 from which the data can be readily transcribed to magnetic tape for further processing. Before being converted to a standard computer-readable format, the LEO data sheets, as they are received from the field, are visually checked for proper coding of date and location and for obvious errors. The forms are then sent for keypunching. During computer processing LEO data are passed through an edit routine that checks for unreasonable values and flags those particular values. The observer is contacted and requested to verify or correct questionable data. After these corrections are made, the LEO data are archived in a data base that is presently stored on magnetic tapes.

LITTORAL ENVIRONMENT OBSERVATIONS

RECORD ALL DATA CAREFULLY AND LEGIBLY

SITE NUMBERS (1 2 3 4 5) | **YEAR** (6 7) | **MONTH** (8 9) | **DAY** (10 11) | **TIME** (12 13 14 15) — Record time using the 24 hour system

WAVE PERIOD (16 17 18)

Record the time in seconds for eleven (11) wave crests to pass a stationary point. If calm record 0.

BREAKER HEIGHT (19 20 . 21)

Record the best estimate of the average wave height to the nearest tenth of a foot.

WAVE ANGLE AT BREAKER (22 23 24)

Record to the nearest degree the direction the waves are coming from using the protractor on the reverse side. 0 if calm.

WAVE TYPE (25)

0 – Calm
1 – Spilling
2 – Plunging
3 – Surging
4 – Spill / Plunge

WIND SPEED (26 27)

Record wind speed to the nearest mph. If calm record 0.

WIND DIRECTION (28) – Direction the wind is coming from.

1 – N 3 – E 5 – S 7 – W 0 – Calm
2 – NE 4 – SE 6 – SW 8 – NW

FORESHORE SLOPE (29 30)

Record foreshore slope to the nearest degree.

WIDTH OF SURF ZONE (31 32 33 34)

Estimate in feet the distance from shore to breakers, if calm record 0.

LONGSHORE CURRENT

DYE (36 37 38)

Estimate distance in feet from shoreline to point of dye injection.

CURRENT SPEED (43 44 45)

Measure in feet the distance the dye patch is observed to move during a one (1) minute period; if no longshore movement record 0.

CURRENT DIRECTION (46 47)

0 No longshore movement
+1 Dye moves toward right
−1 Dye moves toward left

RIP CURRENTS (49 50 51 52)

If rip currents are present, indicate spacing (feet). If spacing is irregular estimate average spacing. If no rips record 0.

BEACH CUSPS (54 55 56)

If cusps are present, indicate spacing (feet). If spacing is irregular estimate average spacing. If no cusps record 0.

PLEASE PRINT:

SITE NAME _____ OBSERVER _____

Please Check The Form For Completeness

REMARKS: _____

CERC 113-72
8 Mar 72

Make any additional remarks, computations or sketches on the reverse side of this form.

Figure 1. LEO data recording form

PART II: LEO RETRIEVAL SYSTEM DESCRIPTION

General System Design

7. The LEO Retrieval System, which performs a variety of data retrieval, data analysis, and report processing functions, is designed to be interactive and self-tutorial. The system guides the user through various steps of retrieving a data set for a particular location and time period from the data base and then uses this data set to produce desired statistical reports. The reports may be either displayed at the terminal or directed to a high-speed printer.

8. The LEO system has been installed on Control Data Corporation's (CDC'S) Cybernet Network System in Rockville, Maryland. Communication is established by means of a terminal dial-up capability. Once the user has gained access to Control Data, the LEO system can be accessed directly.

9. Corps personnel who do not have a Cybernet user account, but wish to obtain one, should contact their local Automated Data Processing (ADP) Coordinator. Users outside the Corps wishing to obtain a Cybernet account must contact a CDC sales representative. The Services Marketing Division of CDC has information concerning the CDC sales representatives in a particular area. The number to call is 612/853-4912. Written requests should be addressed to:

Control Data Corporation
Attn: Vice President, Marketing
PO Box 0
Minneapolis, MN 55440

Persons wishing to obtain further information about LEO should contact:

Ann Sherlock
Coastal Engineering Research Center
USAE Waterways Experiment Station
PO Box 631
Vicksburg, MS 39180-0631
602/634-2074 FTS: 542-2074

Retrieving data

10. The function to retrieve data is initiated interactively and then completed in batch mode. An interactive dialog-like procedure prompts the user for information that identifies a specific subset of the data base. In the batch mode, data are retrieved from tape and copied on an exclusively named user's disk file for report processing.

Reporting data

11. The function to report data, which may be completed in interactive or batch mode, prepares and displays statistical report text. If this function is completed interactively, the user may view report text at the terminal. If it is completed in batch mode, the reports are processed independently of the user's session and printed on a high-speed printer.

Interactive logging-in procedures

12. To begin communication with the LEO Retrieval System, first it is necessary to gain access to CDC's computer by dialing the telephone access number supplied by the local ADP Coordinator or the Cybernet sales representative. The user will then be prompted to enter the following preassigned log-in identification:

```
FAMILY: family (carriage return)
USER NAME: username (carriage return)
PASSWORD: password (carriage return)
RECOVER/CHARGE:CHARGE,chargenumber,username (cr)
```

After the user identification is validated by the computer system, the user is ready to initiate the LEO Retrieval System.

System Initiation and Execution

13. To begin communication with the LEO Retrieval System, the user should type the following:

```
GET,LEOJØ2Ø/UN=CERØ11 (carriage return)
LEOJØ2Ø (carriage return)
```

When the program starts, a welcome message (shown below) is displayed as well as information concerning functions available in this system.

```
        *** WELCOME TO THE LEO RETRIEVAL SYSTEM ***
THIS IS A CONVERSATIONAL SYSTEM.  WHEN HELPFUL EXPLANATIONS ARE
NEEDED, TYPE HELP AFTER THE PROMPT (?).  TO END THE SESSION, ENTER
A CARRIAGE RETURN <CR> AFTER ANY PROMPT TO STEP YOU BACK THROUGH
THE INTERACTION TO THE MAIN MENU.  WHEN IN THE MAIN MENU, A <CR>
WILL TERMINATE THE SESSION.
```

After the question mark prompt (?), the user must type the option corresponding to the desired LEO function. While all functions are initiated interactively, one function (option 3) is executed in batch mode which provides more efficient use of system resources.

```
--- MAIN MENU ---
OPTION  FUNCTION:
  1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
  2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
  3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
  CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
 HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS
?
```

PART III: LEO RETRIEVAL SYSTEM FUNCTIONS

14. A complete description of the LEO Retrieval System functions and the interaction to complete the functions is given in the following paragraphs. Each function gives helpful explanations whenever the user types HELP and checks information entered from the terminal in response to a question. The Retrieval System issues a message to inform the user when an error is detected in the response and allows the response to be entered again. For illustrative purposes, responses are underscored in this text.

Identifying and Retrieving LEO Data

15. Function "option 1" is used to identify and retrieve any subset of the data base that is needed for subsequent analysis and report processing. A data set is first defined by location (site number or latitude/longitude) and then by time period. Once the data set is defined, a batch process copies the data set to an exclusively named disk file. The batch process is transparent to the user, thus allowing another iteration of the interaction to identify a data set. On completion of the batch process, the user will have the data set(s) requested. Appendix A provides examples of data set definition by site number and latitude/longitude.

Location

16. A location may be identified by either entering a preassigned 5-digit site number or entering its latitude/longitude as indicated in the sample printout below. In any case, a list of LEO locations with their corresponding site numbers and latitude/longitude positions is available upon request.

```
SEARCH LEO DATA BY SITE NUMBER (SN) OR LATITUDE/LONGITUDE (LL)
TYPE (HELP) FOR A LIST OF SITE NUMBERS AND LATITUDE/LONGITUDE
COORDINATES.  TYPE (CR) TO RETURN TO THE MAIN MENU.

NOW ENTER (SN,LL,HELP,CR)
? HELP

    EACH LEO SITE IS ASSIGNED A 5-DIGIT SITE IDENTIFICATION
    NUMBER AND A LATITUDE/LONGITUDE COORDINATE POINT IN
    DEGREES AND MINUTES.
```

```
 WOULD YOU LIKE A LEO SITE LIST? (ENTER YES OR NO)
? YES

 ENTER THE NAME OF THE STATE WHERE SITE IS LOCATED
?TEXAS
                    -- SITE IDENTIFICATION TABLE --
       NUMBER NAME                          LATITUDE LONGITUDE
        51101 PADRE ISLAND                   00 00    000 00
        51016 SEA RIN                        29 40    094 04
        51240 BRYON BEACH                    28 53    095 22
        51244 SEA ISLE                       29 08    095 02
        51246 GALVESTON                      29 11    094 57
        51248 BERMUDA                        29 13    094 53
        51250 EAST BEACH                     29 19    094 44
        51251 BOLIVAR                        29 22    094 43
        51253 SWEDE'S                        29 27    094 38
        51255 GILCHRIST                      29 30    094 28
        51256 BEACH CITY                     00 00    000 00
        51257 SHORE ACRES                    00 00    000 00
        51600 CORPUS CHRISTI                 28 49    097 03
        51601 CORPUS CHRISTI NORTH           00 00    000 00

  SEARCH LEO DATA BY SITE NUMBER (SN) OR LATITUDE/LONGITUDE (LL).
  TYPE (HELP)  FOR A LIST OF SITE NUMBERS AND LATITUDE/LONGITUDE
  COORDINATES. TYPE (CR) TO RETURN TO THE MAIN MENU.

  NOW ENTER (SN,LL,HELP,CR)
? SN

  ENTER LEO SITE NUMBER (CR,HELP-FOR SITE LIST)
? 51246
```

Time period

17. After selecting the location, the user is shown the year(s) during which LEO data were collected for this location. He must then identify the period of data that are to be extracted from the data base and stored on a disk file in the following manner:

```
 LEO DATA FOR SITE NUMBER 51246 IS AVAILABLE FOR:
 74 75 76 77 78 79 80

 ENTER YEAR(S) DESIRED (EXP: YR YR YR...  or  YR-YR)
? 74-80
```

He enters only the last two digits of the year using any one of these entry formats to define the period:

a. Single Year - YR

b. Multiple Years - YR YR YR ...

c. Continuous Years - YR-YR

A blank is typed between each period when requesting data for two or more years. A dash is typed between two periods when requesting a continuous period of years.

Unique file name

18. The last interactive step in retrieving a LEO data set is to provide a unique name for the disk file which will contain the extracted data

set. The name can be any combination of one to seven alphanumeric characters. Naturally, a meaningful name is easier to remember when identifying the data set to be reported by the report functions, for example,

```
ENTER A UNIQUE FILE NAME FOR THIS SITE'S DATA
? GALVEST
```

If a file already exists with the name the user enters, a message is printed on the screen. The program gives as many opportunities as needed to enter a unique file name.

19. Now that a data set has been defined, it is possible to either request the identification and retrieval of another data set or to end the function, as follows:

```
DO YOU WISH TO SEARCH FOR MORE LEO DATA? (YES,NO)
?
```

If the user wishes to request another LEO data set, "YES" should be the answer to the prompt. The data set definition interaction will begin again. The answer "NO" should be given to the prompt if the user wants to end the function option.

20. Once the data set has been defined and a unique name has been assigned to its disk storage file, a batch procedure copies the data from tape to disk. The CDC computer's operation system prints a message on the terminal, thus, identifying the batch job submitted by the LEO Retrieval System. A note of the job name that is shown below should be made. The job's name is used to monitor progress of the batch job. The user should refer to the "Confirm Data Retrieval" section of this guide for monitoring instructions.

```
09.32.11. SUBMIT COMPLETE.  JOBNAME IS ACAZKGY
DATA REQUESTED ARE BEING EXTRACTED FROM TAPE. LEO DATA FILE(S)
WITH  THE  UNIQUE NAME(S) YOU HAVE CHOSEN WILL APPEAR IN  YOUR
CATALOG LISTING WHEN THE JOB IS FINISHED.
```

This batch procedure will execute independently of the current interactive session. The time of execution varies according to the computer system's current load situation with 1 to 4 min being an average time. When the execution is completed, the computer will make a custom data set available from which to process reports or conduct further analysis. Appendix A lists sample sessions of data set definition by site number and latitude/longitude.

Browsing the Retrieval Function

21. The user may want to simply browse through the question-and-answer process to become familiar with the capabilities and limitations of the function. If he does not want to retain the data set being identified while browsing, the following null response to the question should be entered:

```
 ENTER A UNIQUE FILE NAME FOR THIS SITE'S DATA
?
 *** DATA WERE NOT REQUESTED DURING THIS SESSION ***
```

The message enclosed in asterisks should be noted. The program prints the message to assure the user that data were not extracted from the data base and that the retrieval option has ended. At this point, the user can either select another function or terminate the session.

```
--- MAIN MENU ---
OPTION  FUNCTION:
  1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
  2     GENERATE REPORT & DISPLAY TEXT ON USER'S TERMINAL
  3     GENERATE REPORT & PRINT TEXT ON A REMOTE PRINTER
  CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
 HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS

?
```

PART IV: LEO DATA REPORTS

22. The LEO data report function prepares and displays statistical report text. Data used as input for the reports are the LEO data that were copied from tape to a disk file. Reports may be generated interactively as part of the user's session or in batch mode independently of the user's session. Report functions are initiated interactively. Although the actual statistical data displayed by both report functions are identical, report headings and formats differ slightly. A description of each report is given in Part VIII of this guide. User responses to the example interactive prompts in this guide are underscored for illustrative purposes.

Reports Displayed at Terminal

23. The "option 2" function should be used to initiate, execute, and view the report on the terminal's screen or printer. The retrieval system restricts terminal report output to 80 characters per line and 22 lines per screen. This program-controlled interrupt gives the user time to view the screen and an opportunity to continue or stop the report display. At the "Main Menu" function prompt (?), a "2" must be typed to select reports generated interactively for display at the terminal, as indicated below.

```
--- MAIN MENU ---
OPTION  FUNCTION:
  1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
  2     GENERATE REPORT & DISPLAY TEXT ON USER'S TERMINAL
  3     GENERATE REPORT & PRINT TEXT ON A REMOTE PRINTER
  CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
 HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS
? 2
```

24. A list of available reports is displayed on the terminal along with a program-issued prompt requesting report selection. The user identifies the report by entering the number corresponding to the report desired. When requesting more than one report, he must type a blank between identifying numbers as follows:

```
AVAILABLE REPORTS:
1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE
2) DAILY LEO OBSERVATION RECORDS
3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
6) ALL OF THE ABOVE

ENTER REPORT NUMBER(S)  (EXP: 1 4 5  or  6) .(HELP or CR)
? 1 4
```

If more than one report is selected, the reports are displayed successively, providing the user wishes to continue display. A description of each report is displayed on the terminal when the user requests HELP.

25. The next step is to identify the LEO data file to be used as input to the report(s) as follows:

```
ENTER FILE NAME OF LEO DATA.
? GALVEST
```

The retrieval system verifies the existence of the entered file name. If the system does not find the name, even though it was typed correctly, then the function retrieving the data set has not been completed. See the "Confirm Data Retrieval" section of this document for instructions to confirm that the data have been copied to a disk file. If the file name has not been typed correctly, the name must be entered again.

26. Before the reports are displayed on the terminal, the user is given a chance to ready the printer, if a hard copy of the interactive report is desired, and to either begin or stop the report display as shown below.

```
   FOR A HARD COPY, TURN ON PRINTER AND POSITION PAPER.
   TO BEGIN REPORT: TYPE SPACE & CR - TO STOP REPORT: TYPE CR
?
```

27. The following example illustrates report text displayed to the terminal for Report Number 1--"DAYS WHEN LEO OBSERVATIONS WERE TAKEN:"

```
                DAYS WHEN LEO OBSERVATIONS WERE TAKEN
                (51246) GALVESTON,                TEXAS
               LATITUDE 29 11.24 - LONGITUDE  94 57.50

                                1975
                          1111111111222222222233
                   1234567890123456789012345678901
               JAN  * ************* ***************  28
               FEB ** *  * * * * **  * ****  **      16
               MAR **     *  *          ***  ****    11
               APR   **  ** ****  *   *   **** *     15
               MAY  ***** ****   ** ********* ****   24
               JUN * *   *   ******   *** * *  *     15
               JUL ******* *** *** ************* *   27
               AUG ***  ** *********** ****** * **   25
               SEP  **  **    ****   *      ***  *   13
               OCT *                ******     ***   10
               NOV *****                 **   ***    10
               DEC    *           ** *  ** ***  **   11
               * ONE OBSERVATION,    > TWO OBSERVATIONS

 TO CONTINUE REPORT: TYPE SPACE AND CR - TO STOP REPORT: TYPE CR
?
```

28. The next successive report will print if the user elects to continue the display. If the user wishes to stop the display, a "carriage return" is typed after the question mark prompt (?). User control returns to the prompt listing the following available reports:

```
AVAILABLE REPORTS:
1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
2) DAILY LEO OBSERVATION RECORDS
3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
6) ALL OF THE ABOVE.

ENTER REPORT NUMBER(S) (EXP:1 4 5  or  6) (HELP or CR)
?
```

At this point, reports can be selected, or the function can be terminated. If the function is terminated, the retrieval system returns to the "Main Menu" function selection level where the user can either make another function selection or terminate the session. Appendix B provides a sample session of reports initiated, generated, and displayed interactively as part of the user's session.

Reports Printed on Remote Printer

29. The "option 3" function can be used to initiate and execute a batch job that will process and print the report. The batch report function acquires user instruction through the same question/answer dialog used by the interactive report function. However, the terminal session remains free for

continued interaction of the LEO Retrieval System. Before requesting this option, the user should make sure the facility has a remote batch terminal with a high-speed printer that can access CDC's remote terminal queue. The remote batch terminal communicates with CDC's system, thus allowing the report text to be printed. A description of each report is given in Part VIII of this guide.

30. To select the function which prints reports on a high-speed printer, the user should type a "3" after the "Main Menu" function prompt, as follows:

```
--- MAIN MENU ---
OPTION  FUNCTION:
  1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
  2     GENERATE REPORT & DISPLAY TEXT ON USER'S TERMINAL
  3     GENERATE REPORT & PRINT TEXT ON A REMOTE PRINTER
  CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
 HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS
? 3
```

31. A list of available reports is displayed on the terminal along with a program-issued prompt requesting report selection. The report can be identified by entering the number corresponding to the report desired. When requesting more than one report, the user should type a blank between identifying numbers. To request all reports he should type a "6" after the prompt, for example,

```
 AVAILABLE REPORTS:
 1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE
 2) DAILY LEO OBSERVATION RECORDS
 3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
 4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
 5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
 6) ALL OF THE ABOVE

 ENTER REPORT NUMBER(S)  (EXP: 1 4 5  or  6 ) (HELP or CR)
? 6
```

A description of each report can be displayed on the terminal by requesting HELP at this prompt.

32. The next step is to identify the LEO data file that is to be used as input to the report(s) as follows:

```
 ENTER FILE NAME OF LEO DATA.
? GALVEST
```

The retrieval system verifies the existence of the file name entered by the

user. If the system does not find the name, even though the name was typed correctly, then the function retrieving the data set has not been completed. The retrieval system will not process this report function until the data are made available. The "Confirm Data Retrieval" section of this guide gives instructions to confirm that the data have been copied to a disk file. If the file name has not been typed correctly, the name should be entered again. The program gives as many opportunities as needed to enter the proper file name.

33. Once the file name is verified, a message identifying the name of the batch job generating the report is printed on the terminal as indicated below. A note should be made of the job name because it is used to monitor the job's progress and to retrieve report text upon completion of the job. The section in this guide titled "Monitor Batch Job Progress" should be consulted to acquire information on the job's status.

```
16.44.4*. SUBMIT COMPLETE.    JOBNAME IS ACAZFVF

THE NOS JOB NAME GIVEN ABOVE IDENTIFIES:
1) THE JOB SUBMITTED TO PRODUCE YOUR REPORT(S)
2) THE JOB CONTAINING YOUR REPORT(S).
UPON COMPLETION OF THE JOB, THE ENQUIRE STATUS WILL BE
        *** JOBNAME IN PRINT-REMOTE QUEUE. **
```

34. The prompt showing available reports and requesting report selection is displayed again. This report retrieval iteration will continue until a null response (carriage return) is entered. A null response may be entered after any prompt (?) to end a function option, for example,

```
AVAILABLE REPORTS:
1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
2) DAILY LEO OBSERVATION RECORDS
3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
6) ALL OF THE ABOVE

ENTER REPORT NUMBER(S) (EXP:1 4 5  or  6) (HELP or CR)
?
```

Appendix B gives a sample session of reports initiated interactively but generated in batch mode independently of the user's session.

Browsing the Report Function

35. Report functions allow the user to browse through the question-and-answer process to become familiar with its capabilities and limitations. To

prevent the generation of a report, the user enters the following null response to the prompt:

```
 ENTER FILE NAME OF LEO DATA
?
 *** REPORTS WERE NOT REQUESTED. OPTION TERMINATES ***
```

The program then prints the message enclosed in asterisks to assure the user that reports were not generated and that the function option has ended. Control returns to the "Main Menu" function selection level as follows:

```
--- MAIN MENU ---
OPTION  FUNCTION:
  1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
  2     GENERATE REPORT & DISPLAY TEXT ON USER'S TERMINAL
  3     GENERATE REPORT & PRINT TEXT ON A REMOTE PRINTER
  CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
 HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS
?
```

PART V: ENDING LEO RETRIEVAL SYSTEM

36. When the user is in the "Main Menu," a carriage return typed in response to the function selection prompt will end the retrieval system session. If the user is not in the "Main Menu" but wishes to end the session, a carriage return typed in response to prompts will step the user back to the "Main Menu."

PART VI: FUNDAMENTAL HOST COMPUTER COMMANDS

Confirm Data Retrieval

37. The user must end the retrieval system session before confirming data retrieval. The "End LEO Retrieval System" section of this guide explains the procedure. When a data subset is copied from tape to a disk file, CDC's computer system places the disk file name in a list of files belonging to the user. If the name the user assigns to the LEO data file appears in the list, then the data have been copied. If the user wishes to see the list of files belonging to him, he should type the following:

```
CATLIST (carriage return)
```

If the name of the user's LEO data file is not listed, the batch job which copies the data has not been completed. To monitor the progress of a job, the user should refer to the section titled "Monitor Batch Job Progress" in this guide.

Monitor Batch Job Progress

38. The LEO Retrieval System session must be terminated before monitoring a batch job. The section in this guide explaining the procedure is titled "Ending LEO Retrieval System." To begin monitoring the progress of a job, the user must type:

```
ENQUIRE,JN (carriage return)
```

CDC's computer system displays a message listing the status of all jobs submitted under the user's name. A job name precedes each message in the list, so the user should locate the job name of interest to him.

39. A LEO data set retrieval job displays the following status message when completed:

```
jobname IN PRINT-TERMINAL QUEUE.
```

When a job generating reports in batch mode has been completed, the status message will be:

```
jobname IN PRINT-REMOTE QUEUE.
```

If the job is not complete, the status can be checked periodically by reiterating this procedure. Appendix C provides sample "Enquire" statement status messages.

End Computer Session

40. A computer session can be terminated by typing "BYE" and a carriage return. In response, the interactive terminal is disconnected from CDC's computer system. The LEO Retrieval System session must be terminated before the computer session can be terminated. The section in this document explaining the procedure is "Ending LEO Retrieval System."

PART VII: DOWNLOADING LEO DATA TO MICRO

41. Downloading (transferring) LEO data files from the host system to the micro is not a function of the LEO Retrieval System. However, the retrieval system does save the LEO data in a file, and this LEO data file can be requested from the host system and downloaded to the micro-level workstation. Users may wish to store downloaded information retrieved from the host system for additional analysis at a later date.

42. The user can enter from the micro into the CDC mainframe host system through communications software and download a LEO data set to the micro-level workstation. Assuming that CROSSTALK communications software is available on the user's micro, the instructions below to download data should be followed.

```
C> XTALK <cr>                    <--- initiate CROSSTALK system
   ESC                           <--- key used to begin command mode
   PARITY NONE <cr>                   |
   DUPLEX HALF <cr>                   |
   DATA 8 <cr>                   <----|next seven (7) lines set
   PORT 1 <cr>                        |communications protocol for
   STOP 1 <cr>                        |CDC.
   MODE CALL <cr>                     |
   SPEED 1200 <cr>                    |
   NU phonenumber <cr><cr>       <--- enter CDC phone number
                                      |after connection, enter user
                                 <----|identification of the catalog
                                      |where your LEO file is stored
   ESC                           <--- begin CROSSTALK command mode
   CA microfilename <cr>         <--- name of micro file where LEO
                                      data will be stored
   OLD,filename <cr>             <--- name of host file where LEO
                                      data is currently stored
   LIST <cr>                     <--- list contents of file
   ESC                           <--- key used to begin command mode
   CA OFF <cr>                   <--- turn off file capture mode
   ESC                           <--- begin CROSSTALK command mode
   QUIT <cr>                     <--- end computer and CROSSTALK
                                      session, transfer is complete
```

The symbol "<cr>" included in the above instructions indicates a carriage return is needed at the end of the line.

PART VIII: LEO STATISTICAL PROGRAMS

43. The LEO Retrieval System offers a library of five statistical programs to produce desired reports. Each report is headed by the report's title and the location's name, site number, and latitude/longitude. All reports may either be displayed on the terminal's screen or printer, or they may be printed on a remote high-speed printer.

44. The retrieval system restricts terminal report output to 80 characters per line and 22 lines per screen. A program-controlled interrupt offers the user time to view the screen and an opportunity to continue or stop the report display.

45. Reports printed on a remote high-speed printer differ from the ones displayed on the terminal in format only. Some reports contain lines as long as 132 characters. This report option is the least costly and should be used when immediate report output is not required.

Daily LEO Observations

46. The "Daily LEO Observations" program provides a formatted listing of the LEO data set. Data parameters provided in the program are surf conditions, local winds, littoral currents, and foreshore slope. These parameters are displayed by date and time of observation.

Days LEO Observations Were Made

47. The "Graph Showing Days When LEO Observations Were Made" program provides a graphic representation of days when observations were made during the month for a particular year. Also included is the number of observations made for the month and for the entire time period.

Surf, Wind, Sediment Transport, and Beach Statistics

48. The "Summary Table of Surf, Wind, Sediment Transport, and Beach Stats" program analyzes a collection of four separate categories of data. If the report is displayed at the user's terminal, each category's data are presented as a stand-alone report. If the report is printed at a high-speed

printer, it combines into a single report of all four categories. This difference in format results because a 132-character line can be printed on a high-speed printer, but only an 80-character line can be displayed on a terminal screen. A report is produced for each year of data in the data set. When the data set contains more than one year's data, then a report is also produced for the entire time period.

Surf observations

49. The surf observations program gives monthly averages of wave height, period, width of surf zone, angle of wave approach to the shoreline, the number of observations made, and the number of observations of calm conditions. It also gives averages for all the surf data acquired during the year.

Wind observations

50. The wind observations program gives monthly averages of wind speed and percent occurrence of wind coming from a specific direction (i.e., north, northeast, south, southeast, west, southwest, and northwest). It also gives an average for all the wind data acquired during the year.

Current observations

51. The current observations program gives monthly averages, standard deviation, and number of observations made for current movement to the left and to the right. Also given are the monthly net current averages and number of observations made.

Sediment transport volume

52. The sediment transport volume program gives monthly net, gross left, and gross right transport volumes. Two methods (described in Chapter 4 of the Shore Protection Manual (SPM 1984)) are used to calculate the transport volume. The yearly volume is calculated by summing the monthly values.

Percent Occurrence of Wave Period Versus Wave Height

53. The "Percent Occurrence of Wave Period Versus Wave Height" program provides a tabular grid of percent occurrence of waves by by height and period for all possible wave direction. Period is presented in row order at 2-min intervals. Height is displayed in columnar format at 1-ft* intervals. The report produces a single grid for each location in the data set.

* A conversion factor of 0.3048 should be used to convert feet to metres.

Percent Occurrence of Wind Speed Versus Direction

54. The "Percent Occurrence of Wind Speed versus Wind Direction" program gives a tabular grid with percent occurrence of winds by speed and direction. Speed is presented in row order at 2-mile* intervals. Direction is presented in columnar format by the direction from which wind is coming. The report produces a single grid for each location in the data set.

---

* A conversion factor of 1.609347 should be used to convert miles (US statute) to kilometres.

PART IX: SUMMARY

55. The LEO Retrieval System is an easy-to-use interactive FORTRAN program for retrieval, analysis, and report processing of wave, wind, current, and sand movement data. The LEO data collection process has been ongoing since 1968, and observations have been made at over 200 sites along the coasts of the United States. The information collected has been placed in a computer data base and is available to the coastal community. The retrieval system gives a user the capability of identifying a subset of the LEO data base and placing that information in a file. The file contains formatted data that can be used as input to analysis programs described in this guide or can easily be used by other programs.

56. The user interacts with the LEO Retrieval System through a computer terminal by answering various questions to select system options. Retrieval system options allow data in the base to be identified for subsequent analysis and provide printed reports of analyzed data either at the terminal or on a remote printer. Internal checks and frequent messages keep the user from making mistakes which might result in lost or incorrect data. Additional information, including descriptions of available options, is interactively available to the user through the HELP option.

REFERENCES

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APPENDIX A: SAMPLE SESSIONS FOR LITTORAL ENVIRONMENT OBSERVATION DATA

The following two sample sessions provide Littoral Environment Observations (LEO) data set definitions by site number and by latitude/longitude.

LEO Data Identification by Site Number

```
/GET,LEOJ020/UN=CER011
/LEOJ020


          **** WELCOME TO THE LEO RETRIEVAL SYSTEM ****
THIS IS A CONVERSATIONAL SYSTEM.  WHEN HELPFUL EXPLANATIONS ARE
NEEDED,  TYPE HELP AFTER THE PROMPT.  TO END THE SESSION, ENTER
A CARRIAGE RETURN <CR> AFTER ANY PROMPT TO STEP YOU BACK THROUGH
THE INTERACTION TO THE MAIN MENU.  WHEN IN THE MAIN MENU, A <CR>
WILL TERMINATE THE SESSION.


 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
? 1

SEARCH LEO DATA BY SITE NUMBER (SN) OR LATITUDE/LONGITUDE (LL).
TYPE (HELP) FOR A LIST OF SITE NUMBERS AND LATITUDE/LONGITUDE
COORDINATES.  TYPE (CR) TO RETURN TO THE MAIN MENU.

NOW ENTER (SN,LL,HELP,CR)
? SN

 ENTER LEO SITE NUMBER (CR,HELP-FOR SITE LIST)
? HELP

    EACH LEO SITE IS ASSIGNED A 5-DIGIT SITE IDENTIFICATION
    NUMBER. ENTER THE SITE NUMBER OF THE SITE FOR WHICH YOU
    DESIRE DATA.

WOULD YOU LIKE A LEO SITE LIST? (ENTER YES OR NO)
? YES

 ENTER THE NAME OF THE STATE WHERE SITE IS LOCATED
? GEORGIA
```

```
                -- SITE IDENTIFICATION TABLE --
       NUMBER NAME                        LATITUDE LONGITUDE
        13002 SAPELO IS. PROFILE #2         31 24    081 15
        13005 SAPELO IS. PROFILE #5         31 23    081 16
        13101 TYBEE LIGHTHOUSE              32 01    080 50
        13102 DESOTO MOTEL                  32 00    080 50
        13103 POLICE STATION                31 59    080 50
        13107 NORTH BEACH                   31 05    081 24
        13108 WANDERER                      31 04    081 24
        13109 BUCCANEER                     31 02    081 24
        13110 SOUTH WATER TOWER             31 00    081 25
        13111 EAST BEACH                    31 09    081 21
        13112 COAST GUARD                   31 08    081 22
        13113 KING AND PRINCE BEACH         31 08    081 22
        13114 ST. SIMONS SCHOOL             31 08    081 23

 ENTER LEO SITE NUMBER (CR,HELP-FOR SITE LIST)
? 13113

 LEO DATA FOR SITE NUMBER 13113 IS AVAILABLE FOR:
 79 80 81

 ENTER YEAR(S) DESIRED (EXP: YR YR YR... OR YR-YR)
? 79 80 81

 ENTER A UNIQUE FILE NAME FOR THIS SITE'S DATA
? KINGBH
REQUESTED LEO DATA WILL BE STORED IN A FILE NAMED KINGBH

 DO YOU WISH TO SEARCH FOR MORE LEO DATA? (YES,NO)
? YES

 ENTER LEO SITE NUMBER (CR,HELP-FOR SITE LIST)
? 13112

 LEO DATA FOR SITE NUMBER 13112 IS AVAILABLE FOR:
 79 80 81

 ENTER YEAR(S) DESIRED (EXP: YR YR YR... OR YR-YR)
? 79-81

 ENTER A UNIQUE FILE NAME FOR THIS SITE'S DATA
? COASTGD
REQUESTED LEO DATA WILL BE STORED IN A FILE NAMED COASTGD

 DO YOU WISH TO SEARCH FOR MORE LEO DATA? (YES,NO)
? NO
 11.49.54. SUBMIT COMPLETE.  JOBNAME IS ADSJWMH
DATA REQUESTED ARE BEING EXTRACTED FROM TAPE.LEO DATA FILE(S)
WITH THE UNIQUE NAME(S) YOU HAVE CHOSEN WILL APPEAR IN YOUR
CATALOG LISTING WHEN THE JOB IS FINISHED.

 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
?
REVERT.      !!! GOOD DAY !!!
```

LEO Data Identification by Latitude/Longitude

```
/GET,LEOJ020/UN=CER011
/LEOJ020


          **** WELCOME TO THE LEO RETRIEVAL SYSTEM ****
THIS IS A CONVERSATIONAL SYSTEM.  WHEN HELPFUL EXPLANATIONS ARE
NEEDED,  TYPE HELP AFTER THE PROMPT.  TO END THE SESSION, ENTER
A CARRIAGE RETURN <CR> AFTER ANY PROMPT TO STEP YOU BACK THROUGH
THE INTERACTION TO THE MAIN MENU.  WHEN IN THE MAIN MENU, A <CR>
WILL TERMINATE THE SESSION.


 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
? 1

SEARCH LEO DATA BY SITE NUMBER (SN) OR LATITUDE/LONGITUDE (LL).
TYPE (HELP) FOR A LIST OF SITE NUMBERS AND LATITUDE/LONGITUDE
COORDINATES.  TYPE (CR) TO RETURN TO THE MAIN MENU.

NOW ENTER (SN,LL,HELP,CR)
? LL

    A SEARCH WILL BE MADE FOR A SITE AT THE GIVEN LOCATION. IF NO
    SITE EXISTS AT THE GIVEN LATITUDE/LONGITUDE, THEN THE SEARCH
    AREA IS EXTENDED BY 10 MINUTES UNTIL A SITE IS LOCATED OR THE
    MAXIMUM EXTENDED AREA OF 60 MINUTES IS SEARCHED.
TYPE "HELP" TO REQUEST A LIST OF SITE LATITUDE/LONGITUDE COORDINATES.

 ENTER LATITUDE:
 DEGREES (CR,HELP-FOR SITE LIST)
? 33
 MINUTES (CR,HELP-FOR SITE LIST)
? 51

 ENTER LONGITUDE:
 DEGREES (CR,HELP-FOR SITE LIST)
? 78
 MINUTES (CR,HELP-FOR SITE LIST)
? 26

 SITE   SITE                                        SITE          SITE
 NUMBER LOCATION                                    LATITUDE      LONGITUDE
 39098  OCEAN ISLE BEACH          NORTH CAROLINA    33DEG 51MIN   78DEG 26MIN

 LEO DATA FOR SITE NUMBER 39098 IS AVAILABLE FOR:
 80 81 82 83 84

 ENTER YEAR(S) DESIRED (EXP: YR YR YR... OR YR-YR)
? 80-84
```

```
 ENTER A UNIQUE FILE NAME FOR THIS SITE'S DATA
? OCEANNC
REQUESTED LEO DATA WILL BE STORED IN A FILE NAMED OCEANNC

 DO YOU WISH TO SEARCH FOR MORE LEO DATA? (YES,NO)
? NO
 11.53.38. SUBMIT COMPLETE.  JOBNAME IS ADSJWNO
DATA REQUESTED ARE BEING EXTRACTED FROM TAPE.LEO DATA FILE(S)
WITH THE UNIQUE NAME(S) YOU HAVE CHOSEN WILL APPEAR IN YOUR
CATALOG LISTING WHEN THE JOB IS FINISHED.

 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
?
REVERT.      !!! GOOD DAY !!!
```

APPENDIX B: SAMPLE SESSIONS FOR GENERATION OF LITTORAL ENVIRONMENT OBSERVATION REPORTS

This Appendix provides examples of Littoral Environment Observation (LEO) reports generated and displayed interactively as part of the user's session as well as those initiated interactively but generated in batch mode independently of the user's session.

Report Generated and Displayed on User's Interactive Terminal

```
/GET,LEOJ020/UN=CER011
/LEOJ020


          **** WELCOME TO THE LEO RETRIEVAL SYSTEM ****
THIS IS A CONVERSATIONAL SYSTEM.  WHEN HELPFUL EXPLANATIONS ARE
NEEDED,  TYPE HELP AFTER THE PROMPT.  TO END THE SESSION, ENTER
A CARRIAGE RETURN <CR> AFTER ANY PROMPT TO STEP YOU BACK THROUGH
THE INTERACTION TO THE MAIN MENU.  WHEN IN THE MAIN MENU, A <CR>
WILL TERMINATE THE SESSION.


 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
? 2

 AVAILABLE REPORTS:
 1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
 2) DAILY LEO OBSERVATION RECORDS
 3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
 4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
 5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
 6) ALL OF THE ABOVE.

 ENTER REPORT NUMBER(S) (EXP:1 4 5  OR  6) (HELP OR CR)
? 1 4

 ENTER FILE NAME OF LEO DATA.
? KINGBH

 IF YOU WOULD LIKE A HARD COPY, TURN ON THE PRINTER AND POSITION THE PAPER.
 TO BEGIN REPORT: TYPE SPACE & CR --- TO STOP REPORT: TYPE CR
?
```

```
                DAYS WHEN LEO OBSERVATIONS WERE TAKEN
                (13113)KING AND PRINCE BEACH    ,GEORGIA
               LATITUDE 31 08.38 - LONGITUDE  81 22.67

                                1979
                      1111111111222222222233
                  12345678901234567890123456789 01
               JAN                *                    1
               FEB          ******************** *     20
               MAR ** ******    * *****)* *********    26
               APR ********************************    30
               MAY *******) * ************ )*******    31
               JUN ***********     *** ***********     25
               JUL ******* ***)))**  **************    31
               AUG ********************************    31
               SEP ***** ***************** ** ****     27
               OCT ****** *****  ****  *  ***  ***     22
               NOV  *  ****    )****  ************     23
               DEC ************** ********* *****     28
               * ONE OBSERVATION,    ) TWO OBSERVATIONS

 TO CONTINUE REPORT: TYPE SPACE AND CR ---TO STOP REPORT: TYPE RETURN
?
                DAYS WHEN LEO OBSERVATIONS WERE TAKEN
                (13113)KING AND PRINCE BEACH    ,GEORGIA
               LATITUDE 31 08.38 - LONGITUDE  81 22.67

                                1980
                      1111111111222222222233
                  12345678901234567890123456789 01
               JAN *** ***********************  ****  28
               FEB * ** ** ***** ***** *********     24
               MAR ********* ************* *******   29
               APR ********************) ** *****     29
               MAY ******* ******     * * *****       20
               JUN * **)***********  *****  ******    26
               JUL ** *   ******    ***     *         13
               AUG *                                   1
               SEP                                     0
               OCT                                     0
               NOV                                     0
               DEC                                     0
               * ONE OBSERVATION,    ) TWO OBSERVATIONS

 TO CONTINUE REPORT: TYPE SPACE AND CR ---TO STOP REPORT: TYPE RETURN
?
                DAYS WHEN LEO OBSERVATIONS WERE TAKEN
                (13113)KING AND PRINCE BEACH    ,GEORGIA
               LATITUDE 31 08.38 - LONGITUDE  81 22.67

                                1981
                      1111111111222222222233
                  12345678901234567890123456789 01
               JAN                                     0
               FEB                                     0
               MAR       **  ************ ****** **   22
               APR ************************** **      29
               MAY **  **  ******** ******     *       19
               JUN  * ****** *       ** *** *    **    16
               JUL **    ****  ****     **     ****     16
               AUG  * **    **** *  *       *   *       11
               SEP                                     0
               OCT                                     0
               NOV                                     0
               DEC                                     0
               * ONE OBSERVATION,    ) TWO OBSERVATIONS

     578 OBSERVATIONS DURING THE PERIOD 01-11-79 TO 08-28-81
LAST REPORT IN THIS CATEGORY ---- WHEN READY TO PROCEED: TYPE SPACE & CR
?
```

```
 IF YOU WOULD LIKE A HARD COPY, TURN ON THE PRINTER AND POSITION THE PAPER.
 TO BEGIN REPORT: TYPE SPACE & CR --- TO STOP REPORT: TYPE CR
?

              LEO PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
13113-KING AND PRINCE BEACH, GEORGIA          DATA COLLECTED 11JAN79 TO 28AUG81

HGT  (FT)     0    1    2    3    4    5    6    7    8    9   10   11   12   13  PERCENT
---------   0.9  1.9  2.9  3.9  4.9  5.9  6.9  7.9  8.9  9.9 10.9 11.9 12.9    +
PER (SEC)
 0-> 1.9     1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     2.
 2-> 3.9     5.   6.   2.   1.   0.   1.   0.   0.   0.   0.   0.   0.   0.   0.    15.
 4-> 5.9     9.  13.   9.   4.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.    38.
 6-> 7.9     5.   6.   8.   4.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.    26.
 8-> 9.9     1.   2.   3.   3.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.    10.
10->11.9     0.   1.   2.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     6.
12->13.9     0.   0.   1.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     2.
14->15.9     0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     0.
16->17.9     0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     0.
18->19.9     0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     0.
20->21.9     0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     0.
22 +         0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.     0.

PERCENT     22.  29.  25.  14.   6.   4.   0.   0.   0.   0.   0.   0.   0.   0.
    CALM =  17. PERCENT ( 95 OBSERVATIONS)  TOTAL OBSERVATIONS =   573
  ONLY REPORT IN THIS CATEGORY ---- WHEN READY TO PROCEED: TYPE SPACE & CR
?

 AVAILABLE REPORTS:
 1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
 2) DAILY LEO OBSERVATION RECORDS
 3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
 4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
 5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
 6) ALL OF THE ABOVE.

 ENTER REPORT NUMBER(S) (EXP:1 4 5  OR  6) (HELP OR CR)
?

 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
?
REVERT.      !!! GOOD DAY !!!
```

Report Generated and Displayed at a Remote High-Speed Printer

```
/GET,LEOJ020/UN=CER011
/LEOJ020


          **** WELCOME TO THE LEO RETRIEVAL SYSTEM ****
THIS IS A CONVERSATIONAL SYSTEM.  WHEN HELPFUL EXPLANATIONS ARE
NEEDED,  TYPE HELP AFTER THE PROMPT.  TO END THE SESSION, ENTER
A CARRIAGE RETURN <CR> AFTER ANY PROMPT TO STEP YOU BACK THROUGH
THE INTERACTION TO THE MAIN MENU.  WHEN IN THE MAIN MENU, A <CR>
WILL TERMINATE THE SESSION.


 --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
? 3

 AVAILABLE REPORTS:
 1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
 2) DAILY LEO OBSERVATION RECORDS
 3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
 4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
 5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
 6) ALL OF THE ABOVE.

 ENTER REPORT NUMBER(S) (EXP:1 4 5  OR  6) (HELP OR CR)
? 6

 ENTER FILE NAME OF LEO DATA.
? OCEANNC
 12.12.20. SUBMIT COMPLETE.  JOBNAME IS ADSJWQZ

 THE NOS JOBNAME GIVEN ABOVE IDENTIFIES:
 1) THE JOB SUBMITTED TO PRODUCE YOUR REPORT(S)
 2) THE JOB CONTAINING YOUR REPORT(S).
 UPON COMPLETION OF THE JOB, THE ENQUIRE STATUS WILL BE
          ** JOBNAME IN PRINT-REMOTE QUEUE. **

 AVAILABLE REPORTS:
 1) TABLE SHOWING DAYS WHEN LEO OBSERVATIONS WERE MADE.
 2) DAILY LEO OBSERVATION RECORDS
 3) SUMMARY TABLE: SURF, WIND, SEDIMENT TRANSPORT, & BEACH STATS
 4) PERCENT OCCURRENCE OF WAVE PERIOD VS WAVE HEIGHT
 5) PERCENT OCCURRENCE OF WIND SPEED VS WIND DIRECTION
 6) ALL OF THE ABOVE.

 ENTER REPORT NUMBER(S) (EXP:1 4 5  OR  6) (HELP OR CR)
 ?

  --- MAIN MENU ---
 OPTION  FUNCTION:
   1     IDENTIFY LEO DATA FOR SUBSEQUENT ANALYSIS & REPORTING
   2     GENERATE REPORT & DISPLAY TEXT AT USER'S TERMINAL
   3     GENERATE REPORT & PRINT TEXT AT A REMOTE PRINTER
   CR    NULL RESPONSE: END OPTION/END SESSION (CR=CARRIAGE RETURN)
  HELP   EXPLANATIONS FOR ALLOWABLE INPUT AND PROGRAM OPTIONS.
 ?
 REVERT.      !!! GOOD DAY !!!
```

APPENDIX C: SAMPLE "ENQUIRE" STATUS MESSAGES

The example below provides a printout of "Enquire" statement status messages.

```
/ENQUIRE,JN
 ADSJ005  EXECUTING.
 ADSJWQZ  IN PRINT -REMOTE    QUEUE.
 ADSJWQV  IN PRINT -REMOTE    QUEUE.
 ADSJWNO  IN PRINT -TERMINAL  QUEUE.
 ADSJVCJ  IN PRINT -TERMINAL  QUEUE.
 ADSJWGS  IN PRINT -TERMINAL  QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
 ADSJWMH  IN PRINT -TERMINAL  QUEUE.
 ADSJWDY  IN PRINT -TERMINAL  QUEUE.
 ADSJPPT  IN PRINT -TERMINAL  QUEUE.
```

Job Name

Message

```
/ENQUIRE,JN
 ADSJ005  EXECUTING.
 ADSJWQZ  IN PRINT -REMOTE    QUEUE.
 ADSJWQV  IN PRINT -REMOTE    QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
 ADSJ027  IN PRINT -REMOTE    QUEUE.
```

Job Name

Message

END

7-87

DTIC